

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Sub F' 1. (currently amended) An image retrieval information storing apparatus, comprising:

a frame feature value generating unit for generating a frame feature value which is numerical information representing quantity of a feature contained in a frame of image data,

wherein said frame feature value is calculated by analyzing statistics of motion vector information related to the image data ~~including associated data for transporting, storing or coding the image, and the frame feature value is not a component of originally contained within said image data, and~~

a frame feature value storing unit for storing said frame feature value ~~with corresponding information of said frame feature value to~~ in correlating form with a ~~the~~ frame of said image data, the frame feature value storing unit being connected to said frame feature value generating unit.

Claims 2-4 (canceled).

5. (withdrawn) An image retrieval information storing apparatus, comprising:

a coding information reading unit (101) reading prescribed coding information which will be information representing frame feature from coded image data; and

a coding information storing unit (801) connected to said coding information reading unit (101) and storing said

coding information in correspondence with each frame of said image data.

6. (withdrawn) The image retrieval information storing apparatus according to claim 5, further comprising:

a frame feature value generating unit (102) connected to said coding information reading unit (101), and generating a frame feature value which is a numerical representation of frame feature based on said coding information;

an index information generating unit (401) connected to said frame feature value generating unit (102), determining a featured frame among said image data based on said frame feature value, and generating index information which is positional information of said featured frame; and

an index information storing unit (601) connected to said index information generating unit (401) and storing said index information.

7. (withdrawn) The image retrieval information storing apparatus according to claim 6, wherein

said coding information includes prediction mode information and motion vector information; and

said frame feature value generating unit (102) includes a prediction mode counting unit (201) connected to said coding information reading unit (101), receiving said prediction mode information and counting number of blocks coded in accordance with respective coding methods for each frame,

a frequency information converting unit (202) connected to said prediction mode counting unit (201) and outputting a prediction mode frame feature value which is a numerical

Appl. No.: 09/451,097
Docket No.: 0033-0630P
Reply to Office Action of September 12, 2003,

representation of frame feature based on the number of blocks for each prediction method,

a motion vector statistic calculating unit (204) connected to said coding information reading unit (101) and calculating statistics of said motion vector based on said prediction mode information, and

5) a statistic information converting unit (205) connected to said prediction mode counting unit (201) and said motion vector statistic calculating unit (204), and outputting a motion vector frame feature value which is a numerical representation of frame feature based on outputs of said prediction mode counting unit (201) and said motion vector statistic calculating unit (204).

8. (withdrawn) An image retrieval information storing apparatus, comprising:

a coding information reading unit (101) reading prescribed coding information which will be information representing frame feature from coded image data;

a frame feature value generating unit (102) connected to said coding information reading unit (101) and generating a frame feature value which is a numerical representation of frame feature based on said coding information;

a first storing unit (1201, 103, 801) connected to said coding information reading unit (101) and to said frame feature value generating unit (102), and storing said coding information and said frame feature value in correspondence with each frame of said image data.

9. (withdrawn) The image retrieval information storing apparatus according to claim 8, further comprising:

an index information generating unit (401) connected to said frame feature value generating unit (102), determining a featured frame among said image data based on frame feature value and generating index information which is positional information of said featured frame;

wherein

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said first storing unit (1201, 103, 801) includes a second storing unit (1201, 601, 103, 801) connected to said coding information reading unit (101), said frame feature value generating unit (102) and said index information generating unit (401), and storing said coding information and said frame feature value in correspondence with each frame of said image data and said index information.

10. (withdrawn) The image retrieval information storing apparatus according to claim 9, wherein

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said second storing unit (1201, 601, 103, 801) includes a storing information selecting unit (1201) connected to said coding information reading unit (101), said frame feature value generating unit (102) and said index information generating unit (401), and selecting and outputting any of said coding information, said frame feature value and said index information,

an index information storing unit (601) connected to said storing information selecting unit (1201) and storing said index information,

a frame feature value storing unit (103) connected to said storing information selecting unit (1201) and storing said

frame feature value in correspondence with each frame of said image data, and

a coding information storing unit (801) connected to said storing information selecting unit (1201) and storing said coding information in correspondence with each frame of said image data.

11. (withdrawn) The image retrieval information storing apparatus according to claim 8, wherein

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said first storing unit (1201, 103, 801) includes a storing information selecting unit (1201) connected to said coding information reading unit (101) and said frame feature value generating unit (102), and selecting and outputting any of said coding information and said frame feature value,

a frame feature value storing unit (103) connected said storing information selecting unit (1201) and storing said frame feature value in correspondence with each frame of said image data, and

a coding information storing unit (801) connected said storing information selecting unit (1201) and storing said coding information in correspondence with each frame of said image data.

12. (withdrawn) The image retrieval information storing apparatus according to claim 10, wherein

said coding information includes prediction mode information and motion vector information; and

said frame feature value generating unit (102) includes a prediction mode counting unit (201) connected to said coding information reading unit (101), receiving said prediction

mode information and counting number of blocks coded in accordance with respective prediction methods for each frame

a frequency information converting unit (202) connected to said prediction mode counting unit (201) and outputting a prediction mode frame feature value which is a numerical representation of frame feature based on the number of the blocks for each prediction method,

a motion vector statistic calculating unit (204) connected to said coding information reading unit (101), and calculating statistics of said motion vector based on prediction mode information, and

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a statistic information converting unit (205) connected to said prediction mode counting unit (201) and said motion vector statistic calculating unit (204), and outputting a motion vector frame feature value which is a numerical representation of frame feature, based on outputs of said prediction mode counting unit (201) and said motion vector statistic calculating unit (204).

13. (withdrawn) The image retrieval information storing apparatus according to frame 9, wherein

said coding information includes prediction mode information and motion vector information; and

said frame feature value generating unit (102) includes a prediction mode counting unit (201) connected to said coding information reading unit (101), receiving said prediction mode information and counting number of blocks coded in accordance with respective prediction methods for each frame,

a frequency information converting unit (202) connected to said prediction mode counting unit (201) and outputting a

prediction mode frame feature value which is a numerical representation of frame feature based on the number of the blocks for each prediction method,

a motion vector statistic calculating unit (204) connected to said coding information reading unit (101), and calculating statistics of said motion vector based on prediction mode information, and

a statistic information converting unit (205) connected to said prediction mode counting unit (201) and said motion vector statistic calculating unit (204), and outputting a motion vector frame feature value which is a numerical representation of frame feature, based on outputs of said prediction mode counting unit (201) and said motion vector statistic calculating unit (204).

14. (withdrawn) The image retrieval information storing apparatus according to claim 8, wherein

said coding information includes prediction mode information and motion vector information; and

said frame feature value generating unit (102) includes a prediction mode counting unit (201) connected to said coding information reading unit (101), receiving said prediction mode information and counting number of blocks coded in accordance with respective prediction methods for each frame,

a frequency information converting unit (202) connected to said prediction mode counting unit (201) and outputting a prediction mode frame feature value which is a numerical representation of frame feature based on the number of the blocks for each prediction method,

a motion vector statistic calculating unit (204) connected to said coding information reading unit (101), and calculating statistics of said motion vector based on prediction mode information, and

a statistic information converting unit (205) connected to said prediction mode counting unit (201) and said motion vector statistic calculating unit (204), and outputting a motion vector frame feature value which is a numerical representation of frame feature, based on outputs of said prediction mode counting unit (201) and said motion vector statistic calculating unit (204).

15. (currently amended) An image retrieving apparatus, comprising:

an index information generating unit for receiving a frame feature value which is numerical information representing quantity of a feature contained in a frame of image data, for determining a featured frame among said image data based on said frame feature value in accordance with a request for extracting a featured frame, and for generating index information which is positional information of said featured frame,

wherein said frame feature value is calculated by analyzing said image data including associated data for transporting, storing or coding the image, and the frame feature value is not a component of originally contained within said image data; and

a image retrieval executing unit connected to said index information generating unit, for transmitting said request for extracting said featured frame to said index information generating unit, for receiving said index information from said

index information generating unit, for receiving said image data from an external source, and for outputting a frame specified based on said index information,

wherein said index information is adaptively changed by changing a setting of a threshold value during the process of retrieval.

16. (previously presented) The image retrieving apparatus according to claim 15, wherein said image retrieval executing unit is connected to said index information generating unit, transmitting said request for extracting a featured frame to said index information generating unit, receiving said index information from said index information generating unit, and also receiving said image data and index information from an external source, and outputting a frame specified based on said index information received from said index information generating unit or said index information from said external source.

17. (previously presented) The image retrieving apparatus according to claim 16, wherein

 said index information generating unit includes
 a frame determining unit receiving said frame feature value and said request for extracting a featured frame, comparing said frame feature value and the threshold value in accordance with said request for extracting a featured frame, and determining said featured frame, and

 an index generating unit connected to said frame determining unit and generating index information which is positional information of said featured frame.

18. (previously presented) The image retrieving apparatus according to claim 15, wherein said index information generating unit includes

a frame determining unit receiving said frame feature value and said request for extracting a featured frame, comparing said frame feature value and the threshold value in accordance with said request for extracting a featured frame, and determining said featured frame, and

an index generating unit connected to said frame determining unit and generating index information which is positional information of said featured frame.

19. (withdrawn) An image retrieving apparatus, comprising:
a frame feature value generating unit (901) receiving prescribed coding information included in coded image data which will be information representing frame feature, and generating a frame feature value which is a numerical representation of the frame feature based on said coding information;

an index information generating unit (401) connected to said frame feature value generating unit (901), receiving said frame feature value from said frame feature value generating unit (901), determining a featured frame among said image data based on said frame feature value in accordance with a request for extracting a featured frame, and generating index information which is positional information of said featured frame, and

a first image retrieval executing unit (902) connected to said frame feature value generating unit (901) and said index information generating unit (401), transmitting said request for extracting a frame feature value to said frame feature value generating unit (901), transmitting said request for extracting a

featured frame to said index information generating unit (401), receiving said index information from said index information generating unit (401) and outputting a frame specified based on said index information.

20. (withdrawn) The image retrieving apparatus according to claim 19, wherein

 said first image retrieval executing unit (902) includes a second image retrieval executing unit (902) connected to said frame feature value generating unit (901) and said index information generating unit (401), transmitting said request for extracting a frame feature value to said frame feature value generating unit (102), transmitting said request for extracting a featured frame to said index information generating unit (401), receiving said index information from said index information generating unit (401) and from outside, receiving said image data from outside, and outputting a frame specified based on said index information.

21. (withdrawn) The image retrieving apparatus according to claim 20, wherein

 said index information generating unit (401) includes a frame determining unit (501, 503) receiving said frame feature value and said request for extracting a featured frame, comparing said frame feature value and a threshold value in accordance with said request for extracting a featured frame, and determining said featured frame, and

 an index generating unit (502, 504) connected to said frame determining unit and generating index information which is positional information of said featured frame.

22. (withdrawn) The image retrieving apparatus according to claim 19, wherein

 said index information generating unit (401) includes a frame determining unit (501, 503) receiving said frame feature value and said request for extracting a featured frame, comparing said frame feature value and a threshold value in accordance with said request for extracting a featured frame, and determining said featured frame, and

 an index generating unit (502, 504) connected to said frame determining unit and generating index information which is positional information of said featured frame.

23. (withdrawn) An image retrieving apparatus, comprising:
 a frame feature value generating unit (901) receiving prescribed coding information included in coded image data, which will be information representing frame feature, and generating a frame feature value which is a numerical representation of the frame feature based on said coding information, in accordance with a request for extracting a frame feature value;

 an index information generating unit (401) connected to said frame feature value generating unit (901), receiving said frame feature value from said frame feature value generating unit (901) and from outside, determining a featured frame among said image data based on said frame feature value in accordance with a request for extracting a featured frame, and generating index information which is positional information of said featured frame; and

 a first image retrieval executing unit (902) connected to said frame feature value generating unit (901) and said index

information generating unit (401), transmitting said request for extracting a frame feature value to said frame feature value generating unit (901), transmitting said request for extracting a featured frame to said index information generating unit (401), receiving said index information from said information generating unit (401), receiving said image data from outside, and outputting a frame specified by said index information.

24. (withdrawn) The image retrieving apparatus according to claim 23, wherein

said first image retrieval executing unit (902) includes a second image retrieval executing unit (902) connected to said frame feature value generating unit (901) and said index information generating unit (401), transmitting said request for extracting a frame feature value to said frame feature value generating unit (901), transmitting said request for extracting a featured frame to said index information generating unit (401), receiving said index information from said index information generating unit (401) and from outside, receiving said image data from outside, and outputting a frame specified based on said index information.

25. (withdrawn) The image retrieving apparatus according to claim 24, wherein

said index information generating unit (401) includes a frame determining unit (501, 503) receiving said frame feature value and said request for extracting a featured frame, comparing said frame feature value and a threshold value in accordance with said request for extracting a featured frame, and determining said featured frame, and

an index generating unit (502, 504) connected to said frame determining unit and generating index information which is positional information of said featured frame.

26. (withdrawn) The image retrieving apparatus according to claim 23, wherein

~~said index information generating unit (401) includes a frame determining unit (501, 503) receiving said frame feature value and said request for extracting a featured frame, comparing said frame feature value and a threshold value in accordance with said request for extracting a featured frame, and determining said featured frame, and~~

~~an index generating unit (502, 504) connected to said frame determining unit and generating index information which is positional information of said featured frame.~~

27. (currently amended): The image retrieval information storing apparatus according to claim 1, further comprising:

~~a coding information reading unit for reading prescribed coding motion vector information which is the base for extracting frame feature from said image data which is coded; and~~

~~said frame feature value generating unit generates said frame feature value based on said coding motion vector information.~~

Claims 28-36 (canceled).